

WHAT IS CLAIMED IS:

1. An apparatus for fabricating an optical fiber grating, comprising:

5 an optical fiber;

a light source for projecting a light beam in a perpendicular direction to the optical fiber;

a mask having an array of elongated openings spaced apart by a predetermined interval period through which
10 the light beam from said light source is transmitted;

a lens interposed between said optical fiber and said light source for focusing the light beam; and,

a mobile lens, disposed to intercept the focused light beam from said lens, for diverging the focused
15 light beam along the lengthwise direction of said optical fiber.

2. The apparatus of claim 1, wherein the shape of said mobile lens is concave.

3. The apparatus of claim 1, wherein the image of light projected through said mask changes as said mobile lens moves toward or away from said optical fiber.

5 4. The apparatus of claim 1, wherein said mask is spaced apart from said optical fiber by a pre-specified distance.

5. An apparatus for fabricating an optical fiber grating, comprising:

10 an optical fiber;

a light source for projecting a light beam in a perpendicular direction to said optical fiber;

15 an integrated multi-period mask through which the light beam from said light source is transmitted, said mask spaced apart from said optical fiber by a predetermined distance;

a lens interposed between said optical fiber and said light source for focusing the light beam; and,

20 a movable concave lens, disposed to intercept the focused light beam from said lens, for diverging the focused light beam along the lengthwise direction of said optical fiber.

6. The apparatus of claim 5, wherein said mask includes a number of an array of elongated openings spaced apart by a predetermined interval period.

5 7. The apparatus of claim 5, wherein the image of light projected through said mask changes as said mobile lens moves toward or away from said optical fiber.

8. A method for fabricating an optical fiber
10 grating, the method comprising the steps of:

providing a mask having at least one light transmitting region through which exposure light is transmitted;

directing a light beam on an optical fiber;

15 orienting a first lens so as to focus the light beam in a perpendicular direction to said optical fiber;

orienting a second lens so as to intercept the focused light beam from said first lens and to diverge the focused light beam along the lengthwise direction of
20 said optical fiber; and,

traversing said second lens along said perpendicular direction so as to change the light image

projected along said optical fiber through said mask.

9. The method of claim 8, further comprising the
step of positioning said mask at a fixed location away
5 from said optical fiber by a predetermined distance.

10. The method of claim 8, wherein said mask
includes at least one array of elongated openings spaced
apart by a predetermined interval period.

11. The method of claim 8, wherein the shape of
said second lens is concave.